

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
8 January 2004 (08.01.2004)

PCT

(10) International Publication Number  
WO 2004/003357 A2

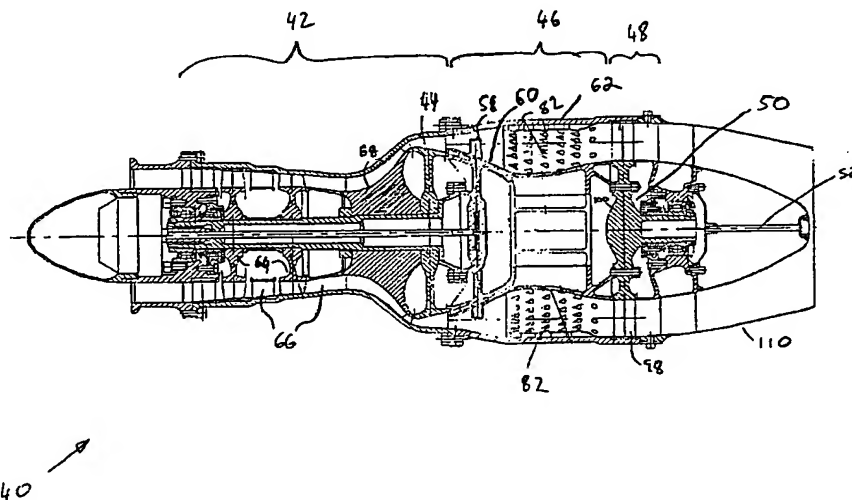
- (51) International Patent Classification<sup>7</sup>: F02B (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (21) International Application Number: PCT/IL2003/000434
- (22) International Filing Date: 26 May 2003 (26.05.2003)
- (25) Filing Language: English
- (26) Publication Language: English (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- (30) Priority Data: 60/391,441 26 June 2002 (26.06.2002) US
- (71) Applicant (*for all designated States except US*): R-JET ENGINEERING LTD. [IL/IL]; 1 Mohaliver St., 46328 Herzeliya (IL).
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): LIOR, David [IL/IL]; 1 Mohaliver St., 46328 Herzeliya (IL).
- (74) Agent: FRIEDMAN, Mark, M.; DR. MARK FRIEDMAN LTD., 7 Haomanim Street, 67897 Tel Aviv (IL).

## Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ORBITING COMBUSTION NOZZLE ENGINE



(57) **Abstract:** An orbiting combustor nozzle (OCN) engine, having a rotating assembly comprising a co-rotating compressor and nozzle wheel enclosed within a non-rotating outer casing, defining a rotating combustion chamber, is disclosed. Combustion occurs in the combustion chamber in a vortex of gas that rotates at the same angular velocity as the rotating assembly. Also disclosed, is a method of cooling a blade of a rotating wheel, such as a turbine wheel or nozzle wheel, by projecting cool air at the base of the vane from a nozzle corotating with the blade. Such cooling is easily implemented in an OCN engine with use of an innovative annular combustor. Also disclosed is a method of countering axial backflow by use of a combustion chamber compressor.

BEST AVAILABLE COPY

WO 2004/003357 A2